

turned in cement. The Swaffham station is only one story in height, of Elizabethan design and flint material, with York stone dressings and brick quoins. It is 96 feet in length and 20 feet in height, with 200 feet in length of platform. The site is convenient to the town. The high road is carried here over a girder bridge below which the permanent way is laid onwards to Sporre, where there is a station also of flint with a long timber platform. By November the opening to Dereham is expected to complete the railway connection from Lynn to Norwich. From £10 to 1,000 men are now employed on the works.—At a recent meeting of the Chester and Holyhead Company, a report was read by the Secretary, in which it is stated that in the progress of the works an average of 90,916 ft. per month has hitherto been expended, and that owing to the progress now being made with the tubular bridges and the completion of station buildings, &c., the average will henceforth be at the rate of 120,000 ft. a month, until the main completion of the line in February next, when it will be opened throughout, except the Britannia or Menai Bridge, which is expected to be ready in the early part of the ensuing summer. The legislative enactment was also announced to the company, under which they are to contribute 200,000 ft. towards the formation of a free or Government harbour of refuge, and packet harbour and pier at Holyhead. In the engineer's report, also read, it was stated that one of the tubes on the platform at Conway is nearly completed, and the plans for moving and raising the tubes are being carried out, hydraulic presses, chains, and pontoons being in progress. The tube so far completed, it is said, "manifests all the strength and rigidity which was anticipated." This bridge is expected to be ready by November next. The Britannia also is in active progress, but in a more backward state than the Conway, where the sufficiency of the principle on which the tubular bridges are formed, will be first tested. In reply to a question put to Mr. Stephenson, he said that General Pasley's letter to *The Times* did not touch the actual principle on which the bridges were being constructed, but he admitted that that principle was involved in the general objection to the mode of erection. "There were only two or three people in this country," he said, "who knew the facts with regard to this kind of construction." The plans were then and there before the company, but "it was impossible to make the details intelligible to a large meeting like the present." Indeed, Mr. Stephenson was understood to admit that "his machinery is very complicated." The vibration, he was assured would be very trifling, as the weight of the tube would be twelve times that of the train; and as to a "Mathematician," who spoke of vibration destroying the tenacity of wrought-iron, or rather, as Mr. Stephenson quoted it,—"the vibration of wrought-iron turning it into cast-iron,"—he might as well have asserted that it would be turned into plumbago!" In conclusion, Mr. Stephenson remarked that "he believed that nothing [requiring correction?] would arise in the erection which would not suggest immediately a mode of correction." In reply to a second question, he also stated that "he expected the tubes would be able to support themselves without the chains. The chains were only intended to raise the tubes to their places, and not to support them."—The Landore viaduct, which is to connect the South Wales line a little above the Morfa copper works, and which will be about half a mile in length, and upwards of 60 feet in height above the tidal level, was begun on Monday week, and is expected to be completed in about ten weeks.—On the inquest held on the body of the engine-driver on the Midland line, who was killed near Klog's Norton, on Friday week before last, the jury in their verdict attributed the accident which led to his death, to "the engine being of much too heavy a description to be used on the present light road, at the rate at which it was travelling, with a light train to which it was attached." A great portion of the line, we understand, is now being relaid.—The contract for the great Central Station in Neville-street, Newcastle, has been let to Messrs. Mackay and Reed, for 92,000 ft. The estimates, says the *Gateshead Observer*, differed to the extent of 20,000 ft.—Berlin appears to rival London

itself in the puffing system. A mercantile house has offered to supply every German railway carriage with silk blinds, gratis, for fifty years, on the mere condition of being allowed to cover them with advertisements, and change them as often as they please.—A Parisian engineer, named Ybry, has patented a new time table, by means of which, at a glance, successive trains can be so regulated with reference to express or extraordinary trains, and to one another, as to avoid collision at any one or all points. It shows at once, without calculation, by the mere intersection of lines representing the length of the line, with vertical lines representing time, the place and time of any train while on its journey, the time of stoppage and departure from any station, &c.

ELECTRO-TELEGRAPHIC PROGRESS.

THE telegraphic system of Messrs. Brett and Little, of Furnival's-inn, is an elaborate result of years of studious ingenuity. The first improvement to be noticed is one for the equalization and sustenance of galvanic power in its continued application to the main apparatus of the electric telegraph. In this case the old evils resulting from the incrustation of the battery-plates with sulphate of zinc are overcome by the establishment of a steady and continuous system of percolation through the main trough, which is supplied with a bare sufficiency of dilute acid, to keep the sand in which the plates are imbedded in a state of saturation. This supply is sustained from a trough above, through nipples which allow it to drop down gradually between each pair of plates, while the solution of sulphate, as it is formed, sinks, by its own gravity, to the bottom of the main trough, and escapes through somewhat similar orifices filled with sponge, into a trough below.

The next improvement is one for the more complete isolation of the power thus steadily generated, during its course along the telegraphic wires, where it has hitherto been liable to dissipation by moisture, such as rain conducting it into the earth along the usual isolators. This has been obviated by the use of isolators of solid crystal, prolonged below into an inverted cup-like form, from the rim of which all rain must drop or run, without taking its course up again through the interior to the support of the isolator at the top of the cupola, through which alone it could complete the conduction to the ground.

The advantages of this from the outset economizing the power wherewith the telegraphic apparatus is to be worked, are various. No separate electro-magnetic apparatus, for instance, is necessary at every station, at a cost of £4. each or so, for connection with the bell; the power itself, eliminated, it may be, and indeed it virtually was, at a distance of 1,000 miles of wire, being capable itself of acting directly on the bell mechanism through a delicate little magnet mounted on an axis, with its poles both pointing to the ground; and not only capable of doing so at one, two, or at the utmost, five or six stations, but at many—seventeen, on our own observation, represented by seventeen distinct repetitions of the apparatus from which the battery was divided by the 1,000 miles of wire, the additional resistance of which whilst twisted into coil must be also overcome.

There are two indicators, which indicate the alphabetical characters by the number of pendulations, or rather semi-pendulations, of either, or both, towards the perpendicular, according to an arbitrary but simple arrangement engraved on the front of the instrument. Numbers are also indicated in a similar way, and responses, such as "understood," "repeat," "yes," "no," &c.

Perhaps one of the most interesting advances in the general principle of the electric telegraph towards ultimate perfection yet attained, consists in the capability of conversing by Messrs. Brett and Little's telegraph on a dozen different subjects at one and the same time, on one and the same line of telegraph, extending between only twice that number of stations,—and that through one line of wire alone, exclusive of a line for preliminary warning by bell. Earth-plates are provided at each station, so that when desired the circuit may be completed through the earth be-

tween any two, or every two, stations, and the communication between any two of these coupled stations be thus temporarily shut off from all beyond them, while these may all be also otherwise engaged. Thus in a line established between London and Liverpool and Manchester, via Birmingham, intelligence may be communicated from London to Birmingham without interfering with either Liverpool or Manchester. And, moreover, those stations between any two such points of converse may shut themselves off from any temporary intercourse in which they may not be interested, until the warning bell announce the contrary.

It would far exceed our present limits were we to particularize the details, by means of which other advantages have been obtained, such as the oblation of the annoyance, confusion, and damage arising from the ringing of bells by atmospheric electricity, and the withdrawal through graduating conductors of all atmospheric electricity, weak or strong, that might otherwise interfere with the action of the wires. We cannot conclude, however, without observing, that although we conceive even this invention to be still far from the *laurel* ideal of electro-telegraphic perfection, that may be a consummation destined never to be anything else than ideal, while there certainly now appears to be a prospect of a speedy realization of something like practical benefits to the public in general and the railway system in particular, which latter it is full time that this foster-child, so long and so deeply indebted to its parent, should bethink itself of now repaying.

THE PRESENT STATE OF ARCHITECTURE.

IN the architectural works of the nineteenth century nearly all known styles from the first beginnings of art are exhibited, the classic and Gothic as well as the revived antique and rococo. These forms are conjured, like spirits of times of old, to give account of our present architectural questions; but one vanishes after the other without a distinct answer.

Such shapes of former times, we must acknowledge, in numerous imitations, rather show that they are not master of the magic key to free the spirit of his charm, that it will perhaps be the work of our own time's genius to find the word by which, dispersing the apparitions of the past, he will in his production, as in a magic mirror, make appear his true character, clearness, and truth.

There is no absolute beauty or sublimity in any style of architecture, nor will it ever be. Neither the Greek style is absolutely beautiful nor the Gothic, though many admirers of it lately gave vent to that opinion. In themselves both are perfect, because each of them completely expresses the character of the time by which it was created. They both are relatively beautiful and sublime, but this must also be said of every other style that gives a true picture of the genius animating its very period.

Thus some ancient languages are of so indisputable a perfection, that their knowledge is justly considered even till now as indispensable for the accomplishment of a learned man. The philologist may enjoy the delight of tracing the spirit of such a language, may be charmed with contemplating its beauties; yield to his enthusiasm in praising their preferences, but never will he think of forcing a nation who has a confidence in its own intellectual powers to give up its original language for a foreign one. During many centuries the Germans were to hear their masses in Latin, but, as unknown strangers, the Latin words resounded in their ears, and the desire to worship in their own tongue grew, so that at no time the faithful called more loudly for the use of it than even now.

So totally impossible, it is to recall into life a dead language, whose forms, being the expression of another time, and not immediately congruent to the ideas of the present, must be either altered into a heterogeneous shape or lack precision by circumlocutions, in the same manner it must be impossible to perform the architectural tasks of our own day with the architectural means serving the purposes of another time. The architect attempting this will be obliged either to sacrifice the fitness of the internal disposition to the external form; he is necessitated to choose, or to disguise them by

* From *Systeme einer neuen telegraphischen Einrichtung*. Teil I. W. Hermann, Architekt. Verlag, 1867.